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[0001] CLOSURE FOR A BOTTLE

[0002] CROSS REFERENCE TO RELATED APPLICATION

[0003] This application is a continuation-in-part and claims priority under 35 U.S.C. § 120 from U.S. Design Patent Application 29/180,775, filed April 30, 2003, and entitled "Lid for a Bottle", which is hereby incorporated by reference herein in its entirety as if fully set forth.

[0004] BACKGROUND

[0005] The present invention is directed to closures for bottles and, more specifically, to closures that allow bottles to be detachably connected to objects.

[0006] Drinking bottles are typically carried by hand when their owners are traveling and wish to bring along a beverage. In some cases, drinking bottles are stored in backpacks or purses to simplify carrying. However, while storing drinking bottles in backpacks or the like may simplify carrying, it also increases the amount of time necessary to drink from the bottle. Specifically, it is necessary to open the backpack, locate the bottle, remove the bottle from the backpack, and then open the bottle to begin to drink.

[0007] It would be advantageous to provide a bottle that could be attached to objects, for example, a belt loop or a purse strap, to simplify the removal and reattachment of the bottle to facilitate drinking therefrom.

[0008]

## SUMMARY

[0009] One embodiment of the present invention is directed to a closure for a bottle that defines a cavity opening to a mouth. The closure includes a closure body having a base portion configured to engage the bottle with the closure body positioned over the mouth. A liquid passageway is defined by the base portion and extends at least partially therethrough. A connector is disposed on the closure body and is adapted to allow the closure body to be detachably connected to an object.

[0010]

## BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The foregoing summary as well as the following detailed description of the preferred embodiments of the present invention will be better understood when read in conjunction with the appended drawings. For the purpose of illustrating the invention, there are shown in the drawings embodiments which are presently preferred. It is understood, however, that the present invention is not limited to the precise arrangements and instrumentalities shown. In the drawings:

[0012] Figure 1 is a perspective view a first preferred embodiment of a closure according to the present invention; the closure includes a closure body formed by a lid and a base portion with a connector located on the lid; the connector is formed by a snap hook; the lid is shown in a first position;

[0013] Figure 2 is an enlarged perspective view of Figure 1 with the lid pivoted away from the base of the closure body to allow access to a drinking spout; the lid is in a second position in which the lid is at least partially disengaged from the base portion;

[0014] Figure 3 is a cross-sectional view of the closure of Figure 1 as taken along the line 3-3 of Figure 1 and illustrates a preferred engagement of the closure of Figure 1 with a bottle; a thermal energy storing member can also be attached to the closure; the lid is in the first position, in which the lid engages the base portion and prevents access to the drinking spout;

[0015] Figure 4 is a perspective view of a second preferred embodiment of the closure of the present invention and illustrates the liquid passageway through the base portion being part of a pull top drinking spout;

[0016] Figure 5 is a cross-sectional view of the closure of Figure 4 similar to that of Figure 3 and illustrates a snap lever in a closed position (shown in solid lines) and in an open position (shown in dashed lines) to allow the snap hook to be engaged or disengaged from an object;

[0017] Figure 6 is a cross-sectional view similar to that of Figure 3 illustrating a third preferred closure according to the present invention; this closure has an enlarged U-shaped member that can have one end detached from the base portion to allow the closure to be attached to an object; the pull top drinking spout preferably remains exposed regardless of whether the enlarged U-shaped member is fully engaged with or partially disengaged from the base portion;

[0018] Figure 7 is a cross-sectional view similar to that of Figure 3 illustrating a fourth preferred embodiment of the closure of the present invention in which the snap lever is spring biased;

[0019] Figure 8 is a cross-sectional view similar to Figure 3 illustrating a fifth

preferred embodiment of the closure of the present invention in which the liquid passageway 38 is formed by a straw 48;

[0020] Figure 9 is a cross-sectional view of a sixth preferred embodiment of the closure of the present invention in which the lid and connector are configured to swivel about a longitudinal axis of the bottle to simplify the engagement and disengagement of the closure with an object;

[0021] Figure 10 is a cross-sectional view similar to Figure 3 illustrating a seventh preferred embodiment of a closure member according to the present invention in which an enlarged U-shaped snap member incorporates a fastener type connection;

[0022] Figure 11 is a cross-sectional view similar to that of Figure 3 illustrating an eighth preferred embodiment of a closure according to the present invention in which the enlarged U-shaped member incorporates a bolt clip;

[0023] Figure 11A is cross-sectional view similar to that of Figure 3 illustrating an alternative embodiment of a closure according to the present invention in which the snap hook is disposed on a side of the closure;

[0024] Figure 12 is a cross-sectional view similar to that of Figure 3 illustrating a ninth preferred embodiment of a closure according to the present invention in which the connector is disposed on the bottle; and

[0025] Figure 13 is a cross-sectional view similar to Figure 3 illustrating a tenth preferred embodiment of a closure according to the present invention in which the connector is located on an end of the bottle opposite from the closure.

[0026] DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0027] Certain terminology is used in the following description for convenience only and is not limiting. The words "right," "left," "top," and "bottom" designate directions in the drawings to which reference is made. The words "inwardly" and "outwardly" refer to directions toward and away from, respectively, the geometric center of the closure and designated parts thereof. The words "a" and "one" are defined as including one or more of the referenced item unless specifically stated otherwise. This terminology includes the words above specifically mentioned, derivatives thereof, and words of similar import.

[0028] Referring to Figures 1-13, wherein like numerals indicate like elements throughout, ten preferred embodiments of a closure according to the present invention are shown and generally designated 20:1-20:10 respectively. Briefly stated, the present invention is directed to a closure 20:1-20:10 for a bottle 34 that increases the ease and enjoyment with which a user can carry and drink from the bottle 34.

[0029] Many of the features of the closure 20:1-20:10 of the present invention are similar and operate in a generally similar fashion. For simplicity, the first preferred closure 20:1 will be described and, thereafter, generally only the differences between the first preferred closure 20:1 and the remaining preferred closure assemblies 20:2-20:10 will be discussed. Accordingly, it is understood that those features discussed in connection with any one the embodiments of the closure 20:1-20:10 will operate generally the same in the remaining embodiments unless otherwise described.

[0030] It is preferred that the closure 20:1-20:10 be formed of a durable, non-

corrosive, compatible with food material, such as a suitable polymer. However, those of ordinary skill in the art will appreciate from this disclosure that the closures 20:1-20:10 of the present invention may be formed of any suitable material, such as stainless steel or the like without departing from the scope of the present invention.

[0031] Referring to Figures 1-3, the first preferred closure 20:1 of the present invention is adapted for use with a bottle 34 that defines a cavity 54 which opens to a mouth 56. The closure 20:1 includes a closure body 32 having a base portion 26 that is configured to engage the bottle 34 with the closure body 32 positioned over the mouth 56.

[0032] As best shown in Figure 3, the closure 32 preferably includes an annular envelope 58 adapted to receive a portion of the bottle 34 which defines the mouth 56 therein. While the annular envelope 58 is shown being as generally rectilinear in cross-section, those of ordinary skill in the art will appreciate from this disclosure that the annular envelope 58 may be parabolic or otherwise non-rectilinear in cross-section without departing from the scope of the present invention.

[0033] It is preferred that the closure 20:1 include a seal 60 that is positioned within the upper portion of the annular envelope 58 to create a generally liquid tight seal between the top of the bottle mouth 56 and the closure 32 when the bottle 34 is fully inserted into the annular envelope 58. The seal 60 generally reduces any liquid transfer between the closure body 32 and the bottle 34.

[0034] It is preferred that the annular envelope 58 include at least one thread 62 for engaging the bottle 34. It is also preferred that the closure 32 include an annular

shroud 64 that is adapted to cover any interface between the annular envelope 58 and the bottle 34. It is preferred the annular shroud 64 flare outwardly as one moves along the outer surface of the annular shroud 64 downwardly toward the bottle and away from a drinking spout 30 (further described below).

[0035] Referring to Figure 2, it is preferred that the closure body 32 include a latch 66 for detachably securing the lid 28 in a first position (shown in Figures 1 and 3 and further described below). It is preferred that the annular shroud 64 include a depressible section 68 that releases the latch 66 to allow the lid 28 to be moved from the first position.

[0036] Referring again to Figure 3, a liquid passageway 38 is defined by the base portion 26 and extends at least partially therethrough. Referring to Figures 5, 7-10, and 12, the liquid passageway 38 can have various shapes without departing from the scope of the present invention.

[0037] Referring to Figures 1-3, a connector 24 is disposed on the closure body 32 and is adapted to allow the closure body 32 to be detachably connected to an object, such as a belt loop, a carry strap, a purse strap, a cord, a loop, or the like. It is preferred that the connector 24 is located on the closure body 32 to extend generally outwardly away from the bottle 34. As shown in Figure 1 the connector 24 preferably extends generally upwardly from the lid 28. However, those of ordinary skill in the art will appreciate from this disclosure that the connector 24 can extend from a lateral side of the closure body 32 or from a lateral side of the annular shroud 64 without departing from the scope of the present invention. It is preferable that the connector 24 is

generally symmetrically aligned about a longitudinal axis (the axis is shown in Figure 9 and identified by reference numeral "X") of the bottle 34.

[0038] Referring to Figures 1-5, 8, 9, 12, and 13, it is preferable that the connector 24 is a snap hook 22. It is preferred that the snap hook 22 include a portion 42, also referred to as snap lever, having a sufficiently thin cross section to allow the snap hook portion 42 to be deflected (as shown in dashed lines). It is preferred that the snap hook 22 is integrally formed with the closure body 32. It is also preferred that the closure body 32 and the snap hook 22 are formed by a suitable polymer. As best shown in Figure 1, it is also preferred that the snap hook 22 include a lateral support member 70 that is connected to opposing lateral sides 72 of the snap hook 22 and to a surface 74 of the closure body 32 that supports the snap hook 22.

[0039] Referring to Figures 2 and 3, it is preferred that a drinking spout 30 is disposed on the base portion 26 of the closure body 32 and forms at least part of the liquid passageway 38. The closure body 32 preferably includes a lid 28 that is moveably connected to the base portion 26 due to a hinge connection 76. While the hinge connection 76 is shown as a living hinge formed by a portion of the closure body 32 those of ordinary skill in the art will appreciate that any hinge, torsion hinge, or suitable pivotable connector can be used to moveably secure the lid 28 to the base portion 26 without departing from the scope of the present invention.

[0040] The lid 28 is moveable between a first position (shown in Figure 3), in which the lid 28 engages the base portion 26 and prevents access to the drinking spout 30, and a second position (shown in Figure 2), in which the lid 28 is at least partially



disengaged from the base portion 26 to allow access to the drinking spout 30. It is preferred that a surface 78 of the lid 28, which faces the base portion 26 when the lid 28 is in the first position, seals the drinking spout 30 while in the first position (shown in Figure 3). It is also preferred that the surface 78 include a seal 80 which substantially prevents fluid flow from the bottle 34 past the lid 28 when the lid 28 is in the first position. Any known suitable seal material may be used in conjunction with the lid surface 78.

[0041] Referring to Figure 2, the drinking spout 30 may be a tube 82 or the like. Referring to Figures 4 and 5, the drinking spout 30 may be a pull top 40 as well. Alternatively, the drinking spout may be formed by part of a straw 48 as shown in Figure 8. A drinking end 48A of the straw is preferably bendable about an abutment 84 when the lid 28 is in the first position. Those of ordinary skill in the art will appreciate from this disclosure that the drinking spout may be any known mechanism, such as a rotatable tube or the like, without departing from the scope of the present invention.

[0042] Referring to Figure 9, a sixth preferred embodiment of the closure 20:6 has a lid 28 and connector 24 that are rotatable about a central axis "X" regardless of whether the lid 28 is in the first or second position. It is preferred that the base portion 26 include a first part 86 that is adapted to engage the bottle and a second part 88 that is rotatably connected to the first part 86. It is preferred that the second part 88 of the base portion 26 is rotatably connected to the first part 86 via the drinking spout 30.

[0043] It is preferred that the second part 88 have an inner ridge 90 that extends

generally upwardly and inwardly in an annular fashion about the drinking spout 30. It is also preferred that the drinking spout 30 include a circumferential lip 92 that abuts the inner ridge 90 of the second part 88 of the base portion 26 to prevent the second part 88 from being disconnected from the first part 86 of the base portion 26. An inwardly facing surface of the inner ridge 90 forms a beveled surface 94 that faces generally diagonally downwardly and inwardly toward the bottom center of the closure body 32.

[0044] During assembly, the beveled surface 94 in combination with the circumferential ridge 92 allows the second part 88 of the closure body 32 to be downwardly depressed over the drinking spout 30 to snap into place for ease of manufacturing. Once the second part 88 has been pressed downwardly so that beveled surface 94 is past the circumferential lip 92, the top edge of the inner ridge 90 abuts the circumferential lip 92 and prevents removal of the second part 88 from the drinking spout 30 that is preferably integrally formed with the first part 86 of the closure body 32.

[0045] Referring to Figure 6, a third embodiment of the closure body 32 includes a connector formed by an enlarged U-shaped member 44. The right side of the enlarged U-shaped 44 member detachably engages the base portion 26 to secure the connector 24 in the closed position. To engage the closure 20:3 with an object, the right side of the enlarged U-shaped member 44 is disengaged from the base portion 26 so that the object can be inserted between the lateral sides 72 of the enlarged U-shaped member 44. Then, the right side of the enlarged U-shaped member 44 is reengaged

with the base portion 26 so that the latch 66 of the U-shaped member 44 is secured thereto.

[0046] Referring to Figure 7, as an alternative to the snap lever 42 being an integral part of the connector 24 and the lid 28, the snap lever 42 may be a separate piece that is rotatably secured to the lid 28 and biased into the closed position by an elastic member, such as spring 46. Referring to Figure 11, the connector 24 may be a bolt clip or may be an enlarged U-shaped member 44 which incorporates a bolt clip 52 therein. The bolt clip 52 may be incorporated into the right leg of the U-shaped member 44 so that a bolt 96 is slidably positioned therein. It is preferable that the bolt 96 be biased downwardly by an elastic member 46 or the like. A button 98 preferably protrudes through a slot 100 to allow a user to manually move the bolt 96 upwardly to disengage the bolt 96 from a bolt receptacle 102 disposed on either a lid or the base portion 26.

[0047] Referring to Figure 10, the enlarged U-shaped member 44 may use a fastener type connection 50 to secure the unhinged side to the lid 28 or the base portion 26. For example, a threaded projection 104 may be located on the base portion 26 to threadably engage a sleeve to secure the right lateral side 72 of the U-shaped member 44 in the closed position.

[0048] Referring to Figures 12 and 13, the closures 20:9-20:10 of the present invention may include connectors 24 that are located on the bottle 34. The placement of connectors 24 on the bottle 34 is within the scope of the present invention.

[0049] Referring to Figures 3, 5, 6, and 13, a thermal energy storing member 36

may be attached to the inside of the inner wall which preferably forms a part of the annular envelope 58. Details of the engagement of the thermal energy storing member 36 with the closure 20:1-20:10 of the present invention are provided in U.S. Patent 6,584,800, issued to Donna Roth and Hank Roth on July 1, 2003, which is hereby incorporated by reference herein in its entirety as if fully set forth.

[0050] Referring to Figures 1-3, one embodiment of the present invention operates as follows. A user attaches the bottle closure 20:1 to an object, such as a backpack strap, by depressing the snap lever 42 to allow the back pack strap or the like to be placed within the snap connector 22. Once the closure 20:1 and any accompanying bottle is secured, a user may carry the closure 20:1 with ease. When a drink is desired, the snap lever 42 is depressed to allow the closure 20:1 to be disengaged from the back pack strap or the like. Then, the user presses the depressible section 68 to disengage the latch 66 from the base portion 26. Then, the lid 28 is rotated from the first position (shown in Figure 3) into the second position (shown in Figure 2) to allow the user to access the drinking spout 30. Once the user is finished drinking from the drinking spout 30, the lid 28 is moved into the first position such that the latch 66 is engaged with the base portion 26. Then, the closure 20:1 and accompanying bottle can be secured for transport by depressing the snap lever 42 to engage the snap hook 22 with a portion of an object. As detailed above, a few examples of the sort of objects to which the closures can be attached are: backpacks, clothes lines, purses, belts, belt loops, luggage straps, drawstrings, loops, and the like.

[0051] While various shapes, connectors, drinking spouts, liquid passageways,

and types of base portions have been described above and shown in the drawings for the various embodiments of the closure 20:1-20:10 of the present invention, those of ordinary skill in the art will appreciate from this disclosure that any combination of the above features, connectors, base portions or the like can be used, in any combination, without departing from the scope of the present invention. Accordingly, it is recognized by those skilled in the art from this disclosure that changes may be made to the above described embodiments of the invention without departing from the inventive concept thereof. It is understood, therefore, that this invention is not limited to the particular embodiments disclosed, but is intended to cover all modifications which are within the spirit and scope of the present invention as defined by the appended claims and/or as shown in the attached drawings.

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